METHOD OF CONTROLLING FLOATING BODY EFFECTS IN AN ASYMMETRICAL soi DEVICE

ABSTRACT OF THE DISCLOSURE

High performance asymmetric transistors including controllable diode characteristics at the source and/or drain are developed by supplying impurities with high accuracy of location by angled implants in a trench or diffusion from a solid body formed as a sidewall of doped material. High concentration gradient of impurities to support high performance is achieved by providing for reduced heat treatment after the impurity is supplied in order to limit diffusion previously necessary to achieve the desired location of impurity structures. Damascene or quasi-Damascene gate structures are also provided for high dimensional uniformity, increased manufacturing yield and structural integrity of the transistor.